
Triethylene Glycol

CAS #112-27-6

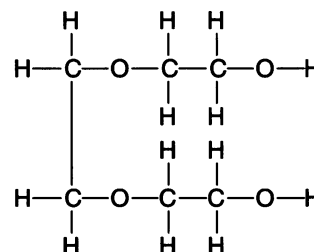
Swiss CD-1 mice, at 0.0, 0.3, 1.5, 3.0%, drinking water

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NTIS: PB85137073



Triethylene glycol (TG) was tested for reproductive toxicity in Swiss CD-1 mice using the RACB protocol (Bossert et al., *Fundam Appl Toxicol* 18:602–608 [1992]). It was part of a series of glycol ethers and congeners evaluated for structure–activity correlations using this design. Data collected on body weights, clinical signs, and food/water consumption during the dose-range-finding segment (Task 1) were used to set concentrations for the main study (Task 2) at 0.0, 0.3, 1.5, and 3.0% in the drinking water. These concentrations gave calculated consumption estimates of 0.6, 3.3, and 6.8 g/kg/day.

Two animals died in the control, middle dose group, and high dose group. TG consumption had no effect on the number of litters/pair delivered during Task 2, nor

the number of live pups per litter. The mean live pup weight adjusted for litter size was reduced in the 1.5 and the 3.0% groups by 4 and 4.5%, respectively.

The lack of change in the number of pups per litter or number of litters per pair led to the decision not to conduct Task 3 (the crossover mating to determine the affected sex).

For the second generation, only the control and high dose groups were evaluated. For the week before mating, when fluid consumption was measured, the treated mice consumed approximately 16% more fluid than the controls. Nonetheless, there was no effect on the ability of the treated animals to mate or to deliver a litter of pups. Those litters had as many live pups as the controls, and the pups weighed

the same (i.e., adjusted pup weight was not reduced by TG exposure).

The F_1 mice were killed and necropsied after the F_2 pups were delivered and evaluated. Relative liver weight was increased by 5 and 6% in males and females, but there were no changes in body weight or other organ weights at necropsy in males or females. Epididymal sperm concentration, motility, and morphology were unaffected by TG exposure at 3%.

In summary, triethylene glycol was not a reproductive toxicant in either generation of Swiss CD-1 mice when administered in drinking water at concentrations of up to 3% weight per volume, although developmental toxicity was noted in the first generation as reduced pup body weight.

Summary: NTP Reproductive Assessment by Continuous Breeding Study.

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Chemical: Triethylene Glycol

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Mode of exposure: Drinking water

Species/strain: Swiss CD-1 mice

| F ₀ generation | Dose concentration → | 0.3% | 1.5% | 3.0% |
|----------------------------|----------------------|--------------|--------------|--------------|
| General toxicity | | Male, female | Male, female | Male, female |
| Body weight | | —, — | —, — | —, — |
| Kidney weight ^a | | • | • | • |
| Liver weight ^a | | • | • | • |
| Mortality | | • | • | • |
| Feed consumption | | • | • | • |
| Water consumption | | —, — | —, — | —, — |
| Clinical signs | | —, — | —, — | —, — |

| Reproductive toxicity | | | |
|---|--|------|------|
| \bar{x} litters/pair | | — | — |
| # live pups/litter; pup wt./litter | | —, — | —, ↓ |
| Cumulative days to litter | | — | — |
| Absolute testis, epididymis weight ^a | | • | • |
| Sex accessory gland weight ^a (prostate, seminal vesicle) | | • | • |
| Epidid. sperm parameters (#, motility, morphology) | | • | • |
| Estrous cycle length | | • | • |

| Determination of affected sex (crossover) | Male | Female | Both |
|---|------|--------|------|
| Dose level | • | • | • |

| F ₁ generation | Dose concentration → | • | • | 3.0% |
|----------------------------|----------------------|--------------|--------------|--------------|
| General toxicity | | Male, female | Male, female | Male, female |
| Pup growth to weaning | | • | • | —, — |
| Mortality | | • | • | —, — |
| Adult body weight | | • | • | —, — |
| Kidney weight ^a | | • | • | •, • |
| Liver weight ^a | | • | • | ↑, ↑ |
| Feed consumption | | • | • | • |
| Water consumption | | • | • | ↑, ↑ |
| Clinical signs | | • | • | • |

| Reproductive toxicity | | | |
|---|--|---|---------|
| Fertility index | | • | — |
| # live pups/litter; pup wt./litter | | • | —, — |
| Absolute testis, epididymis weight ^a | | • | —, — |
| Sex accessory gland weight ^a (prostate, seminal vesicle) | | • | —, — |
| Epidid. sperm parameters (#, motility, morphology) | | • | —, —, — |
| Estrous cycle length | | • | • |

| Summary information | |
|---|---------|
| Affected sex? | Unclear |
| Study confounders: | None |
| F ₁ more sensitive than F ₀ ? | No |
| Postnatal toxicity: | No |

Legend: —, no change; •, no observation; ↑ or ↓, statistically significant change (p<0.05); —, —, no change in males or females. ^aAdjusted for body weight.